

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 8

Complete if Known

Application Number 10/788,685
Filing Date 02/27/2004
First Named Inventor Choi et al.
Group Art Unit 1756
Examiner Name Young, Christopher G.
Attorney Docket Number PA130-06D09

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
Cyg	A1	4,070,116		Frosch et al.	01-24-1978	
	A2	4,600,309		Fay	07-15-1986	
	A3	4,848,911		Uchida et al.	07-18-1989	
	A4	5,074,667		Miyatake	12-24-1991	
	A5	5,148,036		Matsugu et al.	09-15-1992	
	A6	5,148,037		Suda et al.	09-15-1992	
	A7	5,151,754		Ishibashi et al.	09-29-1992	
	A8	5,179,863		Uchida et al.	01-19-1993	
	A9	5,376,810		Hoenk et al.	12-27-1994	
	A10	5,424,549		Feldman	06-13-1995	
	A11	5,670,415		Rust	09-23-1997	
	A12	5,743,998		Park	04-28-1998	
	A13	5,855,686		Rust	01-05-1999	
	A14	5,948,219		Rohner	09-07-1999	
	A15	6,035,805		Rust	03-14-2000	
	A16	6,150,680		Eastman et al.	11-21-2000	
Cyg	A17	6,326,627	B1	Putvinski et al.	12-04-2001	
	A18	2002/0132482	A1	Chou	09-19-2002	
	A19	2002/0167117	A1	Chou	11-14-2002	
	A20	6,482,742	B1	Chou	11-19-2002	
	A21	6,534,418	B1	Plat et al.	03-18-2003	
	A22	6,541,360	B1	Plat et al.	04-01-2003	
	A23	2003/0081193	A1	White et al.	05-01-2003	
	A24	2003/0080471	A1	Chou	05-01-2003	
	A25	2004/0036201	A1	Chou et al.	02-26-2004	
	A26	5,468,542		Crouch	11-21-1995	
	A27	5,366,851		Novembre	11-22-1994	
	A28	5,362,606		Hartney et al.	11-08-1994	
	A29	5,324,683		Fitch et al.	06-28-1994	
	A30	5,212,147		Sheats	05-18-1993	
	A31	5,458,520		DeMercurio et al.	10-17-1995	
	A32	5,453,157		Jeng	09-26-1995	
	A33	5,439,766		Day et al.	08-08-1995	
	A34	5,431,777		Austin et al.	07-11-1995	
Examiner Signature	Cyg				Date Considered	1/2005

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/788,685
				Filing Date	02/27/2004
				First Named Inventor	Choi et al.
				Group Art Unit	1756
				Examiner Name	Young, Christopher G.
Sheet	2	of	8	Attorney Docket Number	PA130-06D09

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
Cmg	A35	5,422,295		Choi et al.	06-06-1995	
	A36	5,421,981		Leader et al.	06-06-1995	
	A37	5,417,802		Obeng	05-23-1995	
	A38	5,380,474		Rye et al.	01-10-1995	
	A39	5,374,454		Bickford et al.	12-20-1994	
	A40	5,330,881		Sidman et al.	07-19-1994	
	A41	5,328,810		Lowrey et al.	07-12-1994	
	A42	5,318,870		Hartney	06-07-1994	
	A43	5,244,818		Jokerst et al.	09-14-1993	
	A44	5,242,711		DeNatale et al.	09-07-1993	
	A45	5,240,878		Fitzsimmons et al.	08-31-1993	
	A46	5,108,875		Thackeray et al.	04-28-1992	
	A47	5,053,318		Gulla et al.	10-01-1991	
	A48	4,964,945		Calhoun	10-23-1990	
	A49	4,908,298		Hefferon et al.	03-13-1990	
	A50	4,921,778		Thackeray et al.	05-01-1990	
	A51	4,919,748		Bredbenner et al.	04-24-1990	
	A52	3,783,520		King	01-08-1974	
	A53	6,776,094	B1	Whitesides et al.	08-17-2004	
	A54	4,201,800		Alcorn et al.	05-06-1980	
	A55	4,426,247		Tamamura et al.	01-17-1984	
	A56	4,507,331		Hiraoka	03-26-1985	
	A57	4,552,833		Ito et al.	11-12-1985	
	A58	4,657,845		Frechet et al.	04-14-1987	
	A59	4,692,205		Sachdev et al.	09-08-1987	
	A60	4,707,218		Giammarco et al.	11-17-1987	
	A61	4,737,425		Lin et al.	04-12-1988	
	A62	4,808,511		Holmes	02-28-1989	
	A63	4,826,943		Ito et al.	05-02-1989	
	A64	4,857,477		Kanamori	08-15-1989	
	A65	4,891,303		Garza et al.	01-02-1990	
	A66	4,931,351		McColgin et al.	06-05-1990	
	A67	4,976,818		Hashimoto et al.	12-11-1990	
	A68	4,980,316		Huebner	12-25-1990	
Examiner Signature	Cmg				Date Considered	1/2005

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>			Complete if Known		
			Application Number	10/788,685	
			Filing Date	02/27/2004	
			First Named Inventor	Choi et al.	
			Group Art Unit	1756	
			Examiner Name	Young, Christopher G.	
Sheet	3	of	8	Attorney Docket Number	PA130-06D09

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
Cuy	A69	4,999,280		Hiraoka	03-12-1991	
	A70	5,071,694		Uekita et al.	12-10-1991	
	A71	5,169,494		Hashimoto et al.	12-08-1992	
	A72	5,173,393		Sezi et al.	12-22-1992	
	A73	5,198,326		Hashimoto et al.	03-30-1993	
	A74	5,234,793		Sebald et al.	08-10-1993	
	A75	5,314,772		Kozicki et al.	05-24-1994	
	A76	5,527,662		Hashimoto et al.	06-18-1996	
	A77	5,654,238		Cronin et al.	08-05-1997	
	A78	5,700,626		Lee et al.	12-23-1997	
A79	5,736,424		Prybyla et al.	04-07-1998		
A80	5,895,263		Carter et al.	04-20-1999		
A81	5,907,782		Wu	05-25-1999		
A82	5,926,690		Toprac et al.	07-20-1999		
A83	5,948,570		Kornblit et al.	09-07-1999		
A84	6,033,977		Gutsche et al.	03-07-2000		
A85	6,096,655		Lee et al.	08-01-2000		
A86	6,150,231		Muller et al.	11-21-2000		
A87	6,245,581	B1	Bonser et al.	06-12-2001		
A88	6,274,294	B1	Hines	08-14-2001		
A89	6,329,256	B1	Ibok	12-11-2001		
A90	6,383,928	B1	Eissa	05-07-2002		
A91	6,387,783	B1	Furukawa et al.	05-14-2002		
A92	6,388,253	B1	Su	05-14-2002		
A93	6,391,798	B1	DeFelice et al.	05-21-2002		
A94	6,455,411	B1	Jiang et al.	09-24-2002		
A95	6,489,068	B1	Kye	12-03-2002		
A96	6,514,672	B2	Young et al.	02-04-2003		
A97	6,561,706	B2	Singh et al.	05-13-2003		
A98	6,565,928	B2	Sakamoto et al.	05-20-2003		
A99	2003/011368	A1	Mancini et al.	06-19-2003		
A100	2003/0129542	A1	Shih et al.	07-10-2003		
A101	6,632,742	B2	Yang et al.	10-14-2003		
A102	6,635,581	B2	Wong	10-21-2003		
Examine Signature	<i>Cuy</i>				Date Considered	1/2005

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

→ 

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
to a collection of information unless it displays a valid OMB control number.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

8

Application Number	10/788,685
Filing Date	02/27/2004
First Named Inventor	Choi et al.
Group Art Unit	1756
Examiner Name	Young, Christopher G.
Attorney Docket Number	PA130-06D09

[illegible]

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 18 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.**



Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449B/PTO			Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Application Number	10/788,685
			Filing Date	02/27/2004
			First Named Inventor	Choi et al.
			Group Art Unit	1756
			Examiner Name	Young, Christopher G.
			Attorney Docket Number	PA130-06D09
Sheet	6	of	8	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
Cuy	A122	Abstract of Japanese Patent 63-138730	
	A123	Abstract of Japanese Patent 55-88332	
	A124	Abstract of Japanese Patent 57-7931	
	A125	Abstract of Japanese Patent 02-92603.	
	A126	Translation of Japanese Patent 02-92603.	
	A127	Abstract of Japanese Patent 02-24848.	
	A128	Translation of Japanese Patent 02-24848.	
	A129	HEIDARI et al., "Nanoimprint Lithography at the 6 in. Wafer Scale," Journal of Vacuum Science Technology, Nov/Dec 2000, pp. 3557-3560, vol. B, no. 18(6)	
	A130	NERAC.COM Retro Search, "Reduction of Dimension of Contact Holes", August 31, 2004	
✓	A131	NERAC.COM Retro Search, "Trim Etching of Features Formed on an Organic Layer", September 2, 2004	
Cuy	A132	NERAC.COM Retro Search, "Multi-Layer Resists", September 2, 2004	

Examiner Signature		Date Considered	1/2005
--------------------	---	-----------------	--------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 7 of 8

Complete if Known

Application Number	10/788,685
Filing Date	02/27/2004
First Named Inventor	Choi et al.
Group Art Unit	1756
Examiner Name	Young, Christopher G.
Attorney Docket Number	PA130-06D09

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Citation No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	†2
Cuy	A133	HU et al., "Flourescence Probe Techniques (FPT) for Measuring the Relative Efficiencies of Free-Radical Photoinitiators", s0024-9297(97)01390-9; "Macromolecules" 1998, vol. 31, no.13, pp. 4107-4113, 1998 American Chemical Society. Published on Web 05/29/1998	
↑	A134	FEYNMAN, Richard P., "There's Plenty of Room at the Bottom—An Invitation to Enter a New Field of Physics," 12 pp [online][Retrieved 9/23/04 from URL: http://www.zyvex.com/nanotech/feynman.html].	
	A135	CIBA SPECIALTY CHEMICALS BUSINESS LINE COATINGS, "What is UV Curing?", 45 pp [online][Retrieved 9/24/04 from URL: http://www.cibasc.com/image.asp?id=4040].	
	A136	Communication Relating to the Results of the Partial International Search; International Appl. No. PCT/US2002/015551.	
	A137	Papirer et al., "The Grafting of Perfluorinated Silanes onto the Surface of Silica: Characterization by Inverse Gas Chromatography," August 1993, pp238-242, vol. 159, Issue 1.	
	A138	Abstract of Papirer et al., "The Grafting of Perfluorinated Silanes onto the Surface of Silica: Characterization by Inverse Gas Chromatography," August 1993, pp238-242, vol. 159, Issue 1.	
	A139	Hirai et al., "Mold Surface Treatment for Imprint Lithography," August 2001, pp 457-462, vol 14, No. 3.	
	A140	Abstract of Hirai et al., "Mold Surface Treatment for Imprint Lithography," August 2001, pp 457-462, vol 14, No. 3.	
	A141	Sung et al., "Micro/nano-tribological Characteristics of Self-Assembled Monolayer and its Application in Nano-Structure Fabrication," July 2003, pp. 808-818, vol. 255, no. 7.	
↓	A142	Abstract of Sung et al., "Micro/nano-tribological Characteristics of Self-Assembled Monolayer and its Application in Nano-Structure Fabrication," July 2003, pp. 808-818, vol. 255, no. 7.	
Cuy	A143	Roos et al., "Nanoimprint Lithography with a Commerical 4 Inch Bond System for Hot Embossing," October 2001, pp. 427-435, vol. 4343.	

Examiner
SignatureDate
Considered

1/2005

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

†Unique citation designation number. ‡Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

→ $\boxed{+}$

Approved for use through 10/31/2002. OMB 0651-0031

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet	8	of	8
-------	---	----	---

Complete if Known

Application Number	10/788,685
Filing Date	02/27/2004
First Named Inventor	Choi et al.
Group Art Unit	1756
Examiner Name	Young, Christopher G.
Attorney Docket Number	PA130-06D09

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

[illegible]

**Examiner
Signature**

Date
Considered

1/2005

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Unique citation designation number. *Applicant is to place a check mark here if English language translation is submitted.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231.

DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231